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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,508	09/16/2003	Terutake Kadohara	1232-5154	1754

27123 7590 09/21/2007
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EXAMINER

LIN, ANDY C

ART UNIT	PAPER NUMBER
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2609

NOTIFICATION DATE	DELIVERY MODE
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09/21/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOPatentCommunications@Morganfinnegan.com
Shopkins@Morganfinnegan.com
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Office Action Summary

Application No.

10/664,508

Applicant(s)

KADOHARA, TERUTAKE

Examiner

Andy C. Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.*

As for **claim 1**, an image sensing apparatus comprising: an image sensing element which is formed on a semiconductor substrate on which at least one of a semiconductor layer, a color filter layer, and a microlens layer is formed by a plurality of divisional exposure operations; and a correction device which corrects variations in a signal output from said image sensing element between a plurality of partial image sensing regions formed by the plurality of divisional exposure operations are taught by the following arts.

Niisoe discloses the use of an imaging device composed of a semiconductor substrate, CCD, an on-chip color filter and an on-chip microlens (Column 6, line 62 – Column 7, line 4).

Shiomi et al. discloses a similar invention where the image sensing element is divided into plural image pickup areas and having a correction means for correcting the [unbalance between image signals output from plural output portions provided for respective image pickup areas] (Column 3, lines 17-38). The correction means is also referred to as a correction circuit (Column 16, line 65).

The inventions of *Niisoe* and *Shiomi et al.* are analogous art because both involve imaging systems and are in the field of endeavor of improving the quality of the images that are produced. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the idea taught by *Shiomi et al.* to *Niisoe's* invention with the motivation described by *Shiomi et al.* of improving the speed of processing as [having plural outputs is advantageous with respect to the speed] (Column 2, lines 64-65).

As for **claim 4**, the apparatus according to claim 1, wherein said correction device performs correction using different correction values in a boundary direction between the partial image sensing regions, and the same correction value in a direction perpendicular to the boundary direction. *Shiomi et al.* taught this in reference to horizontal and vertical directions in regards to the boundary (Column 11, lines 9-32).

It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the idea taught by *Shiomi et al.* to *Niisoe's* invention with the motivation described by *Shiomi et al.* of calculating the amount of unbalance (Column 11, line 10).

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3. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.* as applied to claim 1 and in further view of Patent No. 6,771,814 B1 to *Nakajima*.

As for **claim 2**, the apparatus according to claim 1, wherein said correction device divides the partial image sensing region into a plurality of blocks, and performs correction using a different correction value for each block. Refer to rejection of claim 1, as for the method of dividing the partial image sensing region into a plurality of blocks and performing correction using a different correction value for each block, this is taught by *Nakajima* (Column 3, lines 38-65).

The inventions of *Niisoe*, *Shiomi et al.*, and *Nakajima* are analogous art because they all belong to the same field of endeavor of improving image qualities. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the method of improving images taught by *Nakajima* onto the correction device of claim 1 for the motivation that *Nakajima* mentions which is for [easily obtaining output images without any occurrence of a chromaticity differentiation loss and jump in brightness] (Column 3, lines 44-46).

4. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.* as applied to claim 1 and in further view of Patent No. 6,075,905 to *Herman et al.*

As for **claim 3**, the apparatus according to claim 1, wherein the plurality of partial image sensing regions include at least three partial image sensing regions in one direction, and said correction device corrects remaining two image sensing regions with correction values by using as a reference a central partial image sensing region among the three partial image sensing regions. Refer to rejection of claim 1, the plurality of image pickup areas was not limited and can be three areas aligned in one direction, as for the method of using the central image region as reference to correct the other regions this is taught by *Herman et al.* (Column 15, lines 8-22).

The inventions of *Niisoe*, *Shiomi et al.*, and *Herman et al.* are analogous art because they all belong to the same field of endeavor of improving image qualities. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the method of improving images taught by *Herman et al.* onto the correction device of claim 1 for the motivation that *Herman et al.* mention which is for [achieving color correction between sub-images in a mosaic] (Column 15, lines 8-11).

5. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.* as applied to claim 1 and in further view of Patent No. 7,072,509 B2 to *Hunter et al.*

As for **claim 5**, the apparatus according to claim 1, wherein said correction device performs correction using a different correction value for each color. Refer to rejection to claim 1, as for the correction method mentioned in claim 5 this is taught by

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Hunter et al. to generate data for each pixel for each color value to be used to generate a corrected color image (Column 2, lines 7-31).

The inventions of *Niisoe*, *Shiomi et al.*, and *Hunter et al.* are analogous art because they all belong to the same field of endeavor of improving image qualities. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the method of improving images taught by *Hunter et al.* onto the correction device of claim 1 for the motivation that *Hunter et al.* mention which is for [correcting the colour of a colour image] (Column 2, lines 8-9).

6. **Claim 6 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.* as applied to claim 1 and in further view of Patent No. 7,072,509 B2 to *Hunter et al.* as applied to claim 5.

As for **claim 6**, an image sensing apparatus comprising: an image sensing element on which color filters of a plurality of colors for sensing an object image are formed; and a correction device which divides an image sensing region of said image sensing element into a plurality of partial image sensing regions, and corrects variations between the partial image sensing regions by using a different correction value for each color.

The inventions of *Niisoe*, *Shiomi et al.*, and *Hunter et al.* are analogous art because they all belong to the same field of endeavor of improving image qualities. See similar rejections to claims 1 and 5.

Niisoe discloses the use of an imaging device composed of a semiconductor substrate, CCD, an on-chip color filter and an on-chip microlens (Column 6, line 62 – Column 7, line 4).

Shiomi et al. discloses a similar invention where the image sensing element is divided into plural image pickup areas and having a correction means for correcting the [unbalance between image signals output from plural output portions provided for respective image pickup areas] (Column 3, lines 17-38). The correction means is also referred to as a correction circuit (Column 16, line 65).

Hunter et al. discloses the idea of generating data for each pixel for each color value to be used to generate a corrected color image (Column 2, lines 7-31).

Niisoe discloses an image sensing element on which color filters are formed, *Shiomi et al.* discloses dividing the region into a plurality of regions and correcting unbalance between the regions, and *Hunter et al.* discloses the use of a different correction value for each color.

As for the use of color filters of a plurality of colors, it would have been obvious to one of ordinary skill in the art prior to applicant's invention to have the color filter layer in the rejection to claim 1 to be of a plurality of colors as stated by *Hunter et al.* that [it is common to produce consumer colour sensors by introducing an alternating pattern of colour filters onto the array of individual sensor elements] and it is [often referred to as a

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colour mosaic and a commonly used variant is the RGB Bayer pattern, which has alternating rows of green/red and blue/green pixels] (Column 1, lines 7-12). A motivation would be one stated by *Hunter et al.*, which is [to generate a full RGB image from an image captured with such a sensor] (Column 1, lines 14-15). As for dividing the image sensing region into a plurality of regions the motivation used is the same as that applied to the rejection to claim 1 and the method of using a different correction value for each color the motivation used is the same as that applied to the rejection to claim 5.

As for **claim 7**, the apparatus according to claim 6, wherein said image sensing element outputs a signal from a different output unit for each partial image sensing region, and said correction device performs correction using a different correction value for each output unit.

See rejection to claim 6, as for each region having its own output unit and having a different correction value for each of them, the invention of *Shiomi et al.* has an output unit for each region as well and teaches that [each of plural outputs from the image pickup element is independently processed, correlation for each output is discriminated, the amount of unbalance among the plural outputs is calculated, and correction based on the calculated amount is performed for a processing circuit system] (Column 4, lines 14-19).

The inventions of *Niisoe*, *Shiomi et al.*, and *Hunter et al.* are analogous art because they all belong to the same field of endeavor of improving image qualities. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply what *Shiomi et al.* teaches with the motivation described by *Shiomi et al.* of

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improving the speed of processing as [having plural outputs is advantageous with respect to the speed] (Column 2, lines 64-65) and also to achieve [automatic correction] (Column 4, line14).

7. **Claims 8, 9, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 6,002,145 to *Niisoe* in view of Patent No. 6,791,615 B1 to *Shiomi et al.* as applied to claim 1, and in further view of Patent No. 6,771,814 B1 to *Nakajima* and in further view of Patent No. 7,072,509 B2 to *Hunter et al.* as applied to claim 6, and in further view of Publication No. 2002/0039489 A1 to *Matsuda*.

As for **claim 8**, the apparatus according to claim 6, wherein correction is performed using a different correction value for each lens. *Matsuda* teaches that each lens is different and would have a unique correction value (Paragraph 0040).

The inventions of *Niisoe*, *Shiomi et al.*, *Nakajima*, *Hunter et al.*, and *Matsuda* are analogous art because they all belong to the same field of endeavor of improving image qualities. It is obvious to one of ordinary skill in the art to apply what *Matsuda* teaches for the motivation that *Matsuda* mentions which is to obtain the best imaging position (Paragraph 0016).

As for **claim 9**, the apparatus according to claim 6, wherein correction is performed using a different correction value for each exit pupil position of an optical

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system. *Matsuda* teaches that a different exit pupil position would have a different correction value (Paragraph 0047).

The same motivation applied to the rejection to claim 8 is applied here.

As for **claim 10**, the apparatus according to claim 6, wherein correction is performed using a different correction value for each F-number. *Matsuda* teaches that a different F-number would have a different correction value (Paragraph 0047).

The same motivation applied to the rejection to claim 8 is applied here.

Conclusion

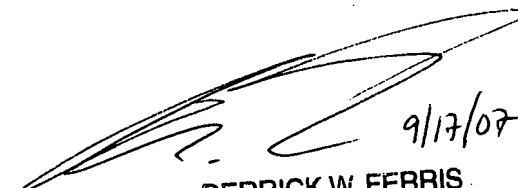
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy C. Lin whose telephone number is (571) 270-3310. The examiner can normally be reached on Monday-Friday:7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick Ferris can be reached on (571) 272-3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ACL/



9/17/07
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SUPERVISORY PATENT EXAMINER